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NLS2004124

October 21, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Licensee Event Report No. 2004-004-00
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

The purpose of this correspondence is to forward a Licensee Event Report.

Sincerely,

Stewart B. Minahan
General Manager of Plant Operations

/dwv
Enclosure

cc: Regional Administrator w/enclosure
USNRC - Region IV

Senior Project Manager w/enclosure
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/enclosure
USNRC

NPG Distribution w/enclosure

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IE22

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The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing & Regulatory Affairs Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Loss of Safety Function Due to Past Inoperabilities of High Pressure Coolant Injection System

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
08	30	2004	2004	– 004 –	00	10	21	2004	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	x 50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Paul V. Fleming, Licensing Manager	(402) 825-2774

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	x NO				

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On May 26, 2003 and November 28, 2003 Cooper Nuclear Station experienced reactor scrams. On both occasions, the reactor vessel water level lowered to the set point causing an automatic start of the High Pressure Coolant Injection (HPCI) system. During reactor water level recovery and stabilization, the HPCI auxiliary oil pump was taken to pull-to-lock, disabling the automatic start function of HPCI. HPCI remained available at all times during these two events. The disabling of a single train safety system is reportable but was overlooked and not included in the respective licensee event reports for the reactor scrams.

Two root causes were attributed to these conditions. 1) There was no hard card available for stopping HPCI injection following automatic initiation. 2) The method used for stopping HPCI injection including preventing injection, was performed from memory and had been practiced in the simulator.

Corrective action will be to revise HPCI system Operating Procedures to provide hard card guidance for stopping HPCI injection. The revised hard card shall only direct placing the auxiliary lube oil pump control switch in pull-to-lock if the initiation signal cannot be reset, or as otherwise described in the Updated Safety Analysis Report. It must also stop injection as soon as possible by pressing the trip button. Conduct appropriate training to reinforce the new procedural guidance.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

PLANT STATUS

Cooper Nuclear Station (CNS) was in Mode 1 (Run) at 100 percent power when personnel discovered that in the past, on two separate occasions, the High Pressure Coolant Injection (HPCI) auxiliary oil pump had been taken to pull-to-lock during similar post scram recovery activities. This action defeats the ability of the single train HPCI system to perform its safety function to automatically start. At the time of these events, the station did not recognize the reportability aspects of the action taken.

BACKGROUND

The High Pressure Coolant Injection (HPCI) System (EIIS:BJ) provides protection to the core for the case of a small break in the reactor coolant pressure boundary which does not result in rapid depressurization of the reactor vessel. The HPCI System permits the nuclear plant to be shutdown while maintaining sufficient reactor vessel water inventory until the reactor vessel is depressurized. The HPCI System continues to operate until reactor vessel pressure is below the pressure at which Low Pressure Coolant Injection (EIIS:BO) operation or Core Spray System (EIIS:BM) operation can be used to maintain core cooling.

HPCI consists of a steam turbine assembly (EIIS:TRB) driving a multi-stage booster and main pump assembly and system piping, valves, controls and instrumentation. The HPCI turbine is driven by steam from the reactor which is generated by decay and residual heat. The steam is extracted from main steam line "C" (EIIS:SB) upstream of the main steam line isolation valves (EIIS:ISV). The HPCI auxiliary lube oil system provides oil requirements for the turbine stop and control valves on initial HPCI turbine startup.

EVENT DESCRIPTION

On May 26, 2003, at 1321 hours, there was a step change in main turbine vibration indication from less than 4 mils to 10.2 mils on the number five bearing. The Control Room indications were validated to be true with the locally installed monitoring system. A controlled shutdown was terminated as the bearing vibration slowly increased as power was reduced. The reactor was manually scrammed at 1727 hours from 89 percent power followed by the manual trip of the main turbine. Subsequent to the scram, reactor vessel water level dropped to approximately 30 inches below instrument zero resulting in multiple actuations and isolations including the automatic start of the HPCI system. At 1730, during reactor water level recovery and stabilization, the HPCI auxiliary oil pump was taken to pull-to-lock disabling the automatic start function of HPCI. The automatic start capability of HPCI was restored at 1840 on May 26, 2003. HPCI remained available at all times. The scram was reported in LER 2003-004.

On November 28, 2003, "B" Reactor Feedwater Pump (RFP) was in automatic when an annunciator for its minimum flow valve was received followed by the reactor low water level alarm. "B" RFP had transferred to manual and lowered in speed and flow. The reactor automatically scrammed at 2202 hours on low reactor water level. Subsequent to the scram, reactor vessel water level dropped to approximately 47 inches below instrument zero resulting in multiple actuations and isolations including the automatic start of the HPCI system. At 2202, during reactor water level recovery and stabilization, the HPCI auxiliary oil pump was taken to pull-to-lock disabling the automatic start function of HPCI. The automatic start capability of HPCI was restored at 2244 on November 28, 2003. HPCI remained available at all times. The scram was reported in LER 2003-007.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

BASIS FOR REPORT

The HPCI system is a single train system. These conditions are reportable in accordance with 10 CFR 50.73(a)(2)(v) as "any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to....(D) Mitigate the consequences of an accident."

SAFETY SIGNIFICANCE

Removing the HPCI system from service by placing the auxiliary oil pump control switch in pull-to-lock after initiation has negligible affect on the risk significance evaluations documented in the related LER 2003-004 and LER 2003-007. The operating crews took HPCI out of service after it was automatically initiated by low reactor water level in order to avoid reactor over fill. The system was available for manual initiation if needed, and a dedicated operator was assigned to monitor reactor water level at the time of the events. Therefore, the risk assessments for LER 2003-004 and LER 2003-007 remain valid as written. They were documented as follows:

LER 2003-004 - The May 26, 2003, scram and the associated plant and operator responses fall within the bounds of CNS probabilistic risk assessment transient initiator T3A. The T3A transient scenario contains the following sequence of events:

> This transient occurs when the reactor scrams due to various trips such as manual scram, turbine-generator trip or other automatic trip signals without a loss of offsite power. This transient does not result in an immediate loss of the condenser as a heat sink but can cause trip of the feedwater system. The feedwater system can be restarted once the trip signal is removed.

The risk significance of this event does not significantly affect the CNS risk as described by the probabilistic risk assessment and established by the baseline reliability of equipment or systems. The use of the condenser as a heat sink during shutdown was not affected by the event and the actual damage was limited to the main turbine components. The risk is considered to be much less than the 1E-06 threshold for risk significant changes in core damage frequency. The condition does not challenge a fuel, reactor coolant pressure, primary containment, or secondary containment boundary. The condition does not impact the plant's ability to safely shutdown or maintain the reactor in a safe shutdown condition. The plant was not placed in an unanalyzed condition nor was there any impact on compliance to plant license or design requirements for safety functions or important to safety component functions. Consequently, the safety significance of this event is very low.

LER 2003-007 - This transient was caused by the "B" RFP controller switching to manual and running back to approximately 3100 revolutions per minute. All other systems responded as expected and the "B" RFP was used to control reactor water level. This event is considered a T3A transient in the PRA model. The T3A transient scenario contains the following sequence of events:

> Transients that do not result in an immediate loss of the condenser as a heat sink but which can cause a trip of the feedwater system. The feedwater system can be restarted once the trip signal is removed.

The Conditional Core Damage Probability (CCDP) for this event was 7.19E-07. This was calculated setting all initiators to 0.0 except T3A. The CCDP is bounded by the average test and maintenance CDF for T3A sequences. The CCDP is less than 1E-06, therefore this event was not risk significant.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

Both conditions are considered Safety System Functional Failures (SSFF) as defined in NEI 99-02, Revision 2, Regulatory Assessment Performance Indicator Guideline. The first SSFF should be considered for NEI 99-02 reporting purposes as having occurred on the date of submittal (07/22/03) of the related LER (LER 2003-004) which reported the first reactor scram. The second SSFF should be considered for NEI reporting purposes as having occurred on the date of submittal (01/19/2004) of the related LER (LER 2003-007) which reported the second reactor scram. Both SSFF's occurred during reactor water level recovery and stabilization following each reactor scram event.

CAUSE

Two root causes were attributed to these conditions. 1) There was no hard card available for stopping HPCI injection following automatic initiation. 2) The method used for stopping HPCI injection including preventing injection, was performed from memory and had been practiced in the simulator.

CORRECTIVE ACTION

Revise HPCI System Operating Procedures to provide hard card guidance for stopping HPCI injection. The revised hard card shall only direct placing the auxiliary lube oil pump control switch in pull-to-lock if the initiation signal cannot be reset, or as otherwise described in the Updated Safety Analysis Report. It must also stop injection as soon as possible by pressing the trip button. Conduct appropriate training to reinforce the new procedural guidance. This action is tracked via the Cooper Nuclear Station Corrective Action Program and is not considered a regulatory commitment.

PREVIOUS EVENTS

At 1915 Central Daylight Time (CDT) on June 1, 2004, the control room received an alarm from the HPCI exhaust drain pot high-level sensor. As a precautionary measure, the HPCI system auxiliary oil pump was placed in pull-to-lock. The HPCI system was declared inoperable per Technical Specification. HPCI remained available at all times. HPCI was returned to service at 1536 CDT on June 2, 2004. This condition was reported to the NRC in LER 2004-003.

At 1425 CDT on September 18, 2002, the Control Room received annunciator, "High Pressure Coolant Injection (HPCI) Gland Seal Condenser Hotwell High Level." In accordance with the alarm response procedure, the HPCI Auxiliary Oil Pump switch was placed in the pull-to-lock position at 1428 CDT. The HPCI system was declared inoperable per Technical Specification. HPCI remained available at all times. This condition was reported to the NRC in LER 2002-001.